In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A well plate comprising:

a plurality of wells, each well being defined by at least one surface that defines a cavity having an opening, wherein each well comprises:

at least one aperture through the at least one surface of the well, the aperture configured to provide a gas supply access to the interior of the well, wherein the at least one aperture through the at least one surface of the well is different than the opening of the cavity that is defined by the at least one surface; and

at least one of a pH level sensor and a dissolved oxygen sensor disposed within the well.

2. (Previously Presented) The well plate of Claim 1, wherein each well is defined by a bottom surface and at least one side surface that defines the opening, the at least one aperture is through the bottom surface.

3. (Original) The well plate of Claim 1, wherein the at least one of a pH level sensor and a dissolved oxygen sensor comprises a fluorescent material disposed on the interior of the at least one surface of the well.

4. (Original) The well plate of Claim 3, wherein each well is defined by a bottom surface and at least one side surface and wherein the at least one of a pH level sensor and a dissolved oxygen sensor are disposed on the interior of the bottom surface of the well.

5. (Original) The well plate of Claim 1, wherein the at least one of a pH level sensor and a dissolved oxygen sensor comprise at least one probe that is coupled to the interior of the well.

6. (Original) The well plate of Claim 5, further comprising a lid configured to be placed over the plurality of wells, wherein the at least one probe extends from the lid into the interior of the well.

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7. (Previously Presented) The well plate of Claim 1, further comprising at least one membrane coupled to the at least one surface of each well and covering the at least one aperture, wherein the membrane is formed from a gas permeable material and the gas is supplied through the membrane.

8. (Previously Presented) The well plate of Claim 7, wherein each well is defined by a bottom surface and at least one side surface, the at least one aperture is through the bottom surface, and the at least one membrane is coupled to the bottom surface of each well.

9. (Cancelled)

10. (Original) The well plate of Claim 7, wherein the membrane is formed from a porous material with pores less than 0.2μm.

11. (Original) The well plate of Claim 7, wherein a plurality of membranes is used with each well.

12. (Original) The well plate of Claim 1, wherein each well comprises a plurality of apertures through the at least one surface of the well, the plurality of apertures configured to provide a gas supply access to the interior of the well.

13. (Original) The well plate of Claim 1, wherein each well comprises an array of apertures through the at least one surface of the well, the array of apertures configured to provide a gas supply access to the interior of the well, wherein each aperture in the array is approximately 0.2 mm to 1 mm in diameter.

14. (Original) The well plate of Claim 1, wherein each well further comprises:

a second aperture through the at least one surface of the well, the second aperture configured to place a temperature control element in thermal contact with the interior of the well; and

a third aperture through the at least one surface of the well, the third aperture configured to place a temperature measurement element in thermal contact with the interior of the well.

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15. (Original) The well plate of Claim 1, wherein the at least one surface of each well has a first thickness, wherein each well further comprises an indentation in the at least one surface of the well, the indentation have a second thickness that is less than the first thickness.

16. (Original) The well plate of Claim 15, wherein each well further comprises a thermally conductive material within the indentation.

17. (Previously Presented) The well plate of Claim 14, further comprising a first membrane coupled to the at least one surface of each well and covering the at least one aperture and a second membrane coupled to the at least one surface of each well and covering at least one of the second and third apertures.

18. (Previously Presented) The well plate of Claim 14, further comprising a membrane coupled to the at least one surface of each well and covering the at least one aperture and the second and third apertures, the membrane having a first thickness over the at least one aperture and having a second thickness over the second and third apertures, the second thickness being greater than the first thickness.

19. (Currently Amended) A well plate comprising:

a plurality of wells, each well having at least one surface that defines an opening at a top of the well, wherein each well comprises:

a first aperture through the at least one surface of the well, the first aperture configured to provide a gas supply access to the interior of the well, wherein the first aperture through the at least one surface of the well is different than the opening at the top of the well that is defined by the at least one surface; and

at least one additional aperture through the at least one surface of the well, the at least one additional aperture configured to place one of a temperature control element and a temperature measurement element in thermal contact with the interior of the well.

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20. (Original) The well plate of Claim 19, wherein the at least one additional aperture through the at least one surface of the well comprises:

a second aperture through one of the surfaces of the well, the second aperture configured to place a temperature measurement element in thermal contact with the interior of the well; and

a third aperture through one of the surfaces of the well, the third aperture configured to place a temperature control element in thermal contact with the interior of the well.

21. (Original) The well plate of Claim 19, wherein the first aperture and the at least one additional aperture are through the bottom surface of each well.

22. (Currently Amended) The well plate of Claim 19, wherein ~~each~~ the first aperture is one of a plurality of apertures through the at least one surface of the well that are configured to provide a gas supply access to the interior of the well.

23. (Original) The well plate of Claim 22, wherein the plurality of apertures form an array of apertures, wherein each aperture in the array is approximately 0.2 mm to 1 mm in diameter.

24. (Original) The well plate of Claim 19, wherein the first aperture comprises a plurality of supporting ribs extending across the first aperture.

25. (Original) The well plate of Claim 19, wherein each well further comprises a means for sensing at least one of the pH level and dissolved oxygen within the well.

26. (Original) The well plate of Claim 25, wherein the means for sensing comprises one or more fluorescent materials disposed on the bottom interior surface of the well.

27. (Original) The well plate of Claim 25, wherein the means for sensing comprises at least one probe that extends into the interior of each well.

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28. (Original) The well plate of Claim 27, the well plate further comprising a lid configured to be placed over the wells, wherein the at least one probe extends from the lid into the interior of the well.

29. (Previously Presented) The well plate of Claim 19, wherein each well further comprises at least one membrane coupled to the at least one surface of the well and covering at least the first aperture, wherein the membrane is formed from a gas permeable material and the gas is supplied through the membrane.

30. (Previously Presented) The well plate of Claim 29, wherein the at least one membrane is a first membrane coupled to the at least one surface of each well and covering the first aperture, the well plate further comprising a second membrane coupled to the at least one surface of each well and covering the at least one additional aperture.

31. (Previously Presented) The well plate of Claim 29, wherein the at least one membrane covers the first aperture and the at least one additional aperture, the membrane having a first thickness over the first aperture and having a second thickness over the at least one additional aperture, the second thickness being greater than the first thickness.

Claims 32-61 (Cancelled)

62. (Previously Presented) The well plate of Claim 1, wherein each well has a bottom and the at least one aperture is through the bottom.

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